

# WASHINGTON STATE LASER

Alignment of Washington 6-8  
Science Standards by Lesson Number for

FOSS/MS

Planetary Science

November 1, 2010

**Alignment of Washington 6-8 Science Standards with  
FOSS/MS Planetary Science ~ Investigation 01**

Standard	Content Standard	Performance Expectation	Evidence of Alignment	Alignment	Alignment Comments
<b>SYSB</b>	The boundaries of a system can be drawn differently depending on the features of the system being investigated, the size of the system, and the purpose of the investigation.	<ul style="list-style-type: none"> <li>• Explain how the boundaries of a system can be drawn to fit the purpose of the study (e.g., to study how insect populations change, a system might be a forest, a meadow in the forest, or a single tree).</li> </ul>	Investigation 1 part 1 pp 38-42	<b>Aligned as designed</b>	Teacher must be intentional about the use of the terms system, subsystem and boundary.
<b>SYSF</b>	The natural and designed world is complex; it is too large and complicated to investigate and comprehend all at once. Scientists and students learn to define small portions for the convenience of investigation. The units of investigation can be referred to as “systems.”	<ul style="list-style-type: none"> <li>• Given a complex societal issue with strong science and technology components (e.g., overfishing, global warming), describe the issue from a systems point of view, highlighting how changes in one part of the system are likely to influence other parts of the system.</li> </ul>	pp 29-54	<b>Aligned with modifications (see comments)</b>	The teacher needs to intentionally take advantage of multiple opportunities to make the connection to a systems point of view and how the investigations are related to portions and the whole of a particular system.
<b>INQB</b>	Different kinds of questions suggest different kinds of scientific investigations.	<ul style="list-style-type: none"> <li>• Plan and conduct a scientific investigation (e.g., field study, systematic observation, controlled experiment, model, or simulation) that is appropriate for the question being asked.</li> <li>• Propose a hypothesis, give a reason for the hypothesis, and explain how the planned investigation will test the hypothesis.</li> <li>• Work collaboratively with other students to carry out the investigations.</li> </ul>	Investigation 1 parts 1-2	<b>Aligned as designed</b>	The teacher needs to be intentional about discussing how a question can lead to a specific scientific investigation.

**Alignment of Washington 6-8 Science Standards with  
FOSS/MS Planetary Science ~ Investigation 01**

Standard	Content Standard	Performance Expectation	Evidence of Alignment	Alignment	Alignment Comments
<b>INQC</b>	Collecting, analyzing, and displaying data are essential aspects of all investigations.	<ul style="list-style-type: none"> <li>• Communicate results using pictures, tables, charts, diagrams, graphic displays, and text that are clear, accurate, and informative.</li> <li>• Recognize and interpret patterns – as well as variations from previously learned or observed patterns – in data, diagrams, symbols, and words.</li> <li>• Use statistical procedures (e.g., median, mean, or mode) to analyze data and make inferences about relationships.</li> </ul>	Investigation 1 parts 2 and 3 pp 43-52	<b>Aligned as designed</b>	
<b>INQE</b>	Models are used to represent objects, events, systems, and processes. Models can be used to test hypotheses and better understand phenomena, but they have limitations.	<ul style="list-style-type: none"> <li>• Create a model or simulation to represent the behavior of objects, events, systems, or processes. Use the model to explore the relationship between two variables and point out how the model or simulation is similar to or different from the actual phenomenon.</li> </ul>	Investigation 1 part 1 pp 38-42	<b>Aligned as designed</b>	Teacher must be intentional about use of the terms (vocabulary) model, systems, hypotheses, and phenomena.
<b>INQF</b>	It is important to distinguish between the results of a particular investigation and general conclusions drawn from these results.	<ul style="list-style-type: none"> <li>• Generate a scientific conclusion from an investigation using inferential logic, and clearly distinguish between results (e.g., evidence) and conclusions (e.g., explanation).</li> <li>• Describe the differences between an objective summary of the findings and an inference made from the findings.</li> </ul>	Investigation 1 part 1 pp 38-42 and part 3 pp 48-53	<b>Aligned as designed</b>	Teacher must be intentional about distinguishing between results and a conclusion.

**Alignment of Washington 6-8 Science Standards with  
FOSS/MS Planetary Science ~ Investigation 02**

Standard	Content Standard	Performance Expectation	Evidence of Alignment	Alignment	Alignment Comments
<b>SYSF</b>	The natural and designed world is complex; it is too large and complicated to investigate and comprehend all at once. Scientists and students learn to define small portions for the convenience of investigation. The units of investigation can be referred to as “systems.”	<ul style="list-style-type: none"> <li>Given a complex societal issue with strong science and technology components (e.g., overfishing, global warming), describe the issue from a systems point of view, highlighting how changes in one part of the system are likely to influence other parts of the system.</li> </ul>	pp 55-78	<b>Aligned with modifications (see comments)</b>	The teacher needs to intentionally take advantage of multiple opportunities to make the connection to a systems point of view and how the investigations are related to portions and the whole of a particular system.
<b>INQA</b>	Scientific inquiry involves asking and answering questions and comparing the answer with what scientists already know about the world.	<ul style="list-style-type: none"> <li>Generate a question that can be answered through scientific investigation. This may involve refining or refocusing a broad and ill-defined question.</li> </ul>	Investigation 2 parts 1-2 pp 55-78	<b>Aligned as designed</b>	Teacher must be intentional about using questioning techniques and comparing results to known scientific data.
<b>INQB</b>	Different kinds of questions suggest different kinds of scientific investigations.	<ul style="list-style-type: none"> <li>Plan and conduct a scientific investigation (e.g., field study, systematic observation, controlled experiment, model, or simulation) that is appropriate for the question being asked.</li> <li>Propose a hypothesis, give a reason for the hypothesis, and explain how the planned investigation will test the hypothesis.</li> <li>Work collaboratively with other students to carry out the investigations.</li> </ul>	Investigation 2 parts 1-2 pp 64-77	<b>Aligned as designed</b>	The teacher needs to be intentional about discussing how a question can lead to a specific scientific investigation.

**Alignment of Washington 6-8 Science Standards with  
FOSS/MS Planetary Science ~ Investigation 02**

Standard	Content Standard	Performance Expectation	Evidence of Alignment	Alignment	Alignment Comments
<b>INQC</b>	Collecting, analyzing, and displaying data are essential aspects of all investigations.	<ul style="list-style-type: none"> <li>• Communicate results using pictures, tables, charts, diagrams, graphic displays, and text that are clear, accurate, and informative.</li> <li>• Recognize and interpret patterns – as well as variations from previously learned or observed patterns – in data, diagrams, symbols, and words.</li> <li>• Use statistical procedures (e.g., median, mean, or mode) to analyze data and make inferences about relationships.</li> </ul>	Investigation 2 parts 1-2 pp 64-78	<b>Aligned as designed</b>	
<b>INQE</b>	Models are used to represent objects, events, systems, and processes. Models can be used to test hypotheses and better understand phenomena, but they have limitations.	<ul style="list-style-type: none"> <li>• Create a model or simulation to represent the behavior of objects, events, systems, or processes. Use the model to explore the relationship between two variables and point out how the model or simulation is similar to or different from the actual phenomenon.</li> </ul>	Investigation 2 parts 1-2 pp 64-78	<b>Aligned as designed</b>	Teacher must be intentional about use of the terms (vocabulary) model, systems, hypotheses, and phenomena.
<b>INQF</b>	It is important to distinguish between the results of a particular investigation and general conclusions drawn from these results.	<ul style="list-style-type: none"> <li>• Generate a scientific conclusion from an investigation using inferential logic, and clearly distinguish between results (e.g., evidence) and conclusions (e.g., explanation).</li> <li>• Describe the differences between an objective summary of the findings and an inference made from the findings.</li> </ul>	Investigation 2 parts 1-2 pp 56-77	<b>Aligned as designed</b>	Teacher must be intentional about distinguishing between results and a conclusion.

**Alignment of Washington 6-8 Science Standards with  
FOSS/MS Planetary Science ~ Investigation 03**

Standard	Content Standard	Performance Expectation	Evidence of Alignment	Alignment	Alignment Comments
<b>SYSA</b>	Any system may be thought of as containing subsystems and as being a subsystem of a larger system.	<ul style="list-style-type: none"> <li>Given a system, identify subsystems and a larger encompassing system</li> </ul>	Investigation 3 part 2 pp 94-96	<b>Aligned with modifications (see comments)</b>	Teacher must be intentional about the use of the term system and subsystem. Teacher must be intentional about using the terms input and output of matter and energy when looking at the system.
<b>SYSD</b>	In an open system, matter flows into and out of the system. In a closed system, energy may flow into or out of the system, but matter stays within the system.	<ul style="list-style-type: none"> <li>Given a description of a system, analyze and defend whether it is open or closed.</li> </ul>	Investigation 3 part 2 p 94-98	<b>Aligned with modifications (see comments)</b>	Teacher must be intentional about the use of the term systems, subsystems, boundaries, input and output. Teachers must also be intentional about using the terms matter, energy, closed system and open system.
<b>SYSF</b>	The natural and designed world is complex; it is too large and complicated to investigate and comprehend all at once. Scientists and students learn to define small portions for the convenience of investigation. The units of investigation can be referred to as “systems.”	<ul style="list-style-type: none"> <li>Given a complex societal issue with strong science and technology components (e.g., overfishing, global warming), describe the issue from a systems point of view, highlighting how changes in one part of the system are likely to influence other parts of the system.</li> </ul>	pp 79-110	<b>Aligned with modifications (see comments)</b>	The teacher needs to intentionally take advantage of multiple opportunities to make the connection to a systems point of view and how the investigations are related to portions and the whole of a particular system.

**Alignment of Washington 6-8 Science Standards with  
FOSS/MS Planetary Science ~ Investigation 03**

Standard	Content Standard	Performance Expectation	Evidence of Alignment	Alignment	Alignment Comments
<b>INQA</b>	Scientific inquiry involves asking and answering questions and comparing the answer with what scientists already know about the world.	<ul style="list-style-type: none"> <li>• Generate a question that can be answered through scientific investigation. This may involve refining or refocusing a broad and ill-defined question.</li> </ul>	Investigation 3 pp 79-110	<b>Aligned as designed</b>	Teacher must be intentional about using questioning techniques and comparing results to known scientific data.
<b>INQC</b>	Collecting, analyzing, and displaying data are essential aspects of all investigations.	<ul style="list-style-type: none"> <li>• Communicate results using pictures, tables, charts, diagrams, graphic displays, and text that are clear, accurate, and informative.</li> <li>• Recognize and interpret patterns – as well as variations from previously learned or observed patterns – in data, diagrams, symbols, and words.</li> <li>• Use statistical procedures (e.g., median, mean, or mode) to analyze data and make inferences about relationships.</li> </ul>	Investigation 3 part 2, pp 94-98 and part 4 pp 104-109	<b>Aligned as designed</b>	
<b>INQE</b>	Models are used to represent objects, events, systems, and processes. Models can be used to test hypotheses and better understand phenomena, but they have limitations.	<ul style="list-style-type: none"> <li>• Create a model or simulation to represent the behavior of objects, events, systems, or processes. Use the model to explore the relationship between two variables and point out how the model or simulation is similar to or different from the actual phenomenon.</li> </ul>	Investigation 3 part 1 pp 89-93	<b>Aligned as designed</b>	Teacher must be intentional about use of the terms (vocabulary) model, systems, hypotheses, and phenomena.

**Alignment of Washington 6-8 Science Standards with  
FOSS/MS Planetary Science ~ Investigation 03**

Standard	Content Standard	Performance Expectation	Evidence of Alignment	Alignment	Alignment Comments
<b>INQF</b>	It is important to distinguish between the results of a particular investigation and general conclusions drawn from these results.	<ul style="list-style-type: none"> <li>• Generate a scientific conclusion from an investigation using inferential logic, and clearly distinguish between results (e.g., evidence) and conclusions (e.g., explanation).</li> <li>• Describe the differences between an objective summary of the findings and an inference made from the findings.</li> </ul>	Investigation 3 parts 2 pp 94-97 and part 4 pp 104-109	<b>Aligned as designed</b>	Teacher must be intentional about distinguishing between results and a conclusion.
<b>ES1C</b>	Most objects in the Solar System are in regular and predictable motion. These motions explain such phenomena as the day, the year, phases of the moon, and eclipses.	<ul style="list-style-type: none"> <li>• Use a simple physical model or labeled drawing of the Earth-Sun-Moon system to explain day and night, phases of the Moon, and eclipses of the Moon and Sun.</li> </ul>	Investigation 3 parts 1 and 2, pp 89-97; CD-ROM: Day/ Night Simulation; Lab Notebook p 13	<b>Aligned as designed</b>	Teacher must make use of information found in the CD.

**Alignment of Washington 6-8 Science Standards with  
FOSS/MS Planetary Science ~ Investigation 04**

Standard	Content Standard	Performance Expectation	Evidence of Alignment	Alignment	Alignment Comments
<b>SYSF</b>	The natural and designed world is complex; it is too large and complicated to investigate and comprehend all at once. Scientists and students learn to define small portions for the convenience of investigation. The units of investigation can be referred to as "systems."	<ul style="list-style-type: none"> <li>Given a complex societal issue with strong science and technology components (e.g., overfishing, global warming), describe the issue from a systems point of view, highlighting how changes in one part of the system are likely to influence other parts of the system.</li> </ul>	pp 111-142	<b>Aligned with modifications (see comments)</b>	The teacher needs to intentionally take advantage of multiple opportunities to make the connection to a systems point of view and how the investigations are related to portions and the whole of a particular system.
<b>INQA</b>	Scientific inquiry involves asking and answering questions and comparing the answer with what scientists already know about the world.	<ul style="list-style-type: none"> <li>Generate a question that can be answered through scientific investigation. This may involve refining or refocusing a broad and ill-defined question.</li> </ul>	Investigation 4 parts 2-3, pp 126-134	<b>Aligned as designed</b>	Teacher must be intentional about using questioning techniques and comparing results to known scientific data.
<b>INQB</b>	Different kinds of questions suggest different kinds of scientific investigations.	<ul style="list-style-type: none"> <li>Plan and conduct a scientific investigation (e.g., field study, systematic observation, controlled experiment, model, or simulation) that is appropriate for the question being asked.</li> <li>Propose a hypothesis, give a reason for the hypothesis, and explain how the planned investigation will test the hypothesis.</li> <li>Work collaboratively with other students to carry out the investigations.</li> </ul>	Investigation 4 parts 2 and 3 pp 128-135; Lab Notebook p 27	<b>Aligned as designed</b>	

**Alignment of Washington 6-8 Science Standards with  
FOSS/MS Planetary Science ~ Investigation 04**

Standard	Content Standard	Performance Expectation	Evidence of Alignment	Alignment	Alignment Comments
<b>INQC</b>	Collecting, analyzing, and displaying data are essential aspects of all investigations.	<ul style="list-style-type: none"> <li>• Communicate results using pictures, tables, charts, diagrams, graphic displays, and text that are clear, accurate, and informative.</li> <li>• Recognize and interpret patterns – as well as variations from previously learned or observed patterns – in data, diagrams, symbols, and words.</li> <li>• Use statistical procedures (e.g., median, mean, or mode) to analyze data and make inferences about relationships.</li> </ul>	Investigation 4 part 1 pp 121-125; Lab Notebook p 23	<b>Aligned as designed</b>	
<b>APPH</b>	People in all cultures have made and continue to make contributions to society through science and technology.	<ul style="list-style-type: none"> <li>• Describe scientific or technological contributions to society by people in various cultures.</li> </ul>	Investigation 4 parts 1-4 pp 111-141; Resource book pp 54-58	<b>Aligned as designed</b>	Teacher must do the reading and discussions as assigned as well as talk to students about how the lunar myths contribute to our understanding of the moon.

**Alignment of Washington 6-8 Science Standards with  
FOSS/MS Planetary Science ~ Investigation 05**

Standard	Content Standard	Performance Expectation	Evidence of Alignment	Alignment	Alignment Comments
<b>SYSD</b>	In an open system, matter flows into and out of the system. In a closed system, energy may flow into or out of the system, but matter stays within the system.	<ul style="list-style-type: none"> <li>Given a description of a system, analyze and defend whether it is open or closed.</li> </ul>	Investigation parts 1-4 pp 154-183	<b>Aligned with modifications (see comments)</b>	Teacher must be intentional about the use of the term systems, subsystems, boundaries, input and output. Teachers must also be intentional about using the terms matter, energy, closed system and open system.
<b>SYSE</b>	If the input of matter or energy is the same as the output, then the amount of matter or energy in the system won't change; but if the input is more or less than the output, then the amount of matter or energy in the system will change.	<ul style="list-style-type: none"> <li>Measure the flow of matter into and out of an open system and predict how the system is likely to change (e.g., a bottle of water with a hole in the bottom, an ecosystem, an electric circuit).</li> </ul>	Investigation 5 parts 2-4 pp 158-173; CD-ROM: Crater Formation Animation	<b>Aligned as designed</b>	Teacher must be intentional about the use of the term systems, subsystems, boundaries, input and output. Teachers must also be intentional about using the terms matter, energy, closed system and open system.
<b>SYSF</b>	The natural and designed world is complex; it is too large and complicated to investigate and comprehend all at once. Scientists and students learn to define small portions for the convenience of investigation. The units of investigation can be referred to as "systems."	<ul style="list-style-type: none"> <li>Given a complex societal issue with strong science and technology components (e.g., overfishing, global warming), describe the issue from a systems point of view, highlighting how changes in one part of the system are likely to influence other parts of the system.</li> </ul>	pp 143-184	<b>Aligned with modifications (see comments)</b>	The teacher needs to intentionally take advantage of multiple opportunities to make the connection to a systems point of view and how the investigations are related to portions and the whole of a particular system.

**Alignment of Washington 6-8 Science Standards with  
FOSS/MS Planetary Science ~ Investigation 05**

Standard	Content Standard	Performance Expectation	Evidence of Alignment	Alignment	Alignment Comments
INQA	Scientific inquiry involves asking and answering questions and comparing the answer with what scientists already know about the world.	<ul style="list-style-type: none"> <li>• Generate a question that can be answered through scientific investigation. This may involve refining or refocusing a broad and ill-defined question.</li> </ul>	pp 143-184	<b>Aligned as designed</b>	Teacher must be intentional about using questioning techniques and comparing results to known scientific data.
INQB	Different kinds of questions suggest different kinds of scientific investigations.	<ul style="list-style-type: none"> <li>• Plan and conduct a scientific investigation (e.g., field study, systematic observation, controlled experiment, model, or simulation) that is appropriate for the question being asked.</li> <li>• Propose a hypothesis, give a reason for the hypothesis, and explain how the planned investigation will test the hypothesis.</li> <li>• Work collaboratively with other students to carry out the investigations.</li> </ul>	Investigation 5 parts 2-3 pp 158-167 and part 6 pp 176-179	<b>Aligned as designed</b>	The teacher needs to be intentional about discussing how a question can lead to a specific scientific investigation.
INQC	Collecting, analyzing, and displaying data are essential aspects of all investigations.	<ul style="list-style-type: none"> <li>• Communicate results using pictures, tables, charts, diagrams, graphic displays, and text that are clear, accurate, and informative.</li> <li>• Recognize and interpret patterns – as well as variations from previously learned or observed patterns – in data, diagrams, symbols, and words.</li> <li>• Use statistical procedures (e.g., median, mean, or mode) to analyze data and make inferences about relationships.</li> </ul>	Investigation 5 parts 2-3, pp 158-167, and parts 6-7 pp 176-182; Lab Notebook pp 33-39	<b>Aligned as designed</b>	

**Alignment of Washington 6-8 Science Standards with  
FOSS/MS Planetary Science ~ Investigation 05**

Standard	Content Standard	Performance Expectation	Evidence of Alignment	Alignment	Alignment Comments
<b>INQD</b>	For an experiment to be valid, all (controlled) variables must be kept the same whenever possible, except for the manipulated (independent) variable being tested and the responding (dependent) variable being measured and recorded. If a variable cannot be controlled, it must be reported and accounted for.	<ul style="list-style-type: none"> <li>Plan and conduct a controlled experiment to test a hypothesis about a relationship between two variables. Determine which variables should be kept the same (controlled), which (independent) variable should be systematically manipulated, and which responding (dependent) variable is to be measured and recorded. Report any variables not controlled and explain how they might affect results.</li> </ul>	Investigation 5 parts 2 and 3 pp 158-167; Lab Notebook pp 35, 37	<b>Aligned with modifications (see comments)</b>	Be sure to clarify the vocabulary: variable, independent (manipulated), dependent (responding), and controlled. Inquiries need to intentionally follow an experimental process.
<b>INQF</b>	It is important to distinguish between the results of a particular investigation and general conclusions drawn from these results.	<ul style="list-style-type: none"> <li>Generate a scientific conclusion from an investigation using inferential logic, and clearly distinguish between results (e.g., evidence) and conclusions (e.g., explanation).</li> <li>Describe the differences between an objective summary of the findings and an inference made from the findings.</li> </ul>	Investigation 5 parts 4, 6, and 7; pp 168-173 and 176-184	<b>Aligned as designed</b>	Teacher must be intentional about distinguishing between results and a conclusion.
<b>PS1A</b>	Average speed is defined as the distance traveled in a given period of time.	<ul style="list-style-type: none"> <li>Measure the distance an object travels in a given interval of time and calculate the object's average speed, using <math>S = d/t</math>. (e.g., a battery-powered toy car travels 20 meters in 5 seconds, so its average speed is 4 meters per second).</li> <li>Illustrate the motion of an object using a graph, or infer the motion of an object from a graph of the object's position vs. time or speed vs. time.</li> </ul>	Investigation 5 part 2 pp 158-163; Lab Notebook p 35; CD-ROM: Crater Formation Animation	<b>Aligned with modifications (see comments)</b>	The unit contains opportunities to address the standards but the teacher must be intentional in using the term "speed" and its method of calculation. The investigation is not explicit in teaching how to calculate speed (Speed = Distance / Time). The teacher must include the CD-ROM as well as p 35 of the Resource book.

**Alignment of Washington 6-8 Science Standards with  
FOSS/MS Planetary Science ~ Investigation 05**

Standard	Content Standard	Performance Expectation	Evidence of Alignment	Alignment	Alignment Comments
PS3A	Energy exists in many forms: heat, light, chemical, electrical, motion of objects, and sound. Energy can be transformed from one form to another and transferred from one place to another.	<ul style="list-style-type: none"> <li>List different forms of energy (e.g., thermal, light, chemical, electrical, kinetic, and sound energy).</li> <li>Describe ways in which energy is transformed from one form to another and transferred from one place to another (e.g., chemical to electrical energy in a battery, electrical to light energy in a bulb).</li> </ul>	Investigation 5 parts 1 and 2 pp 154-167	<b>Module/Unit requires changes (see comments)</b>	Teacher must be intentional about use of the terms: energy forms, thermal, electrical, light, chemical, kinetic & sound, energy transfer and energy transform.
ES1D	Gravity is the force that keeps planets in orbit around the Sun and governs the rest of the motion in the Solar System. Gravity alone holds us to the Earth's surface.	<ul style="list-style-type: none"> <li>Predict what would happen to an orbiting object if gravity were increased, decreased, or taken away.</li> </ul>	Investigation 5 part 1-3, pp 154-167; Resource book pp 69-70	<b>Aligned with modifications (see comments)</b>	The unit contains many opportunities to address the standards but the teacher must be intentional in using the term gravity when discussing the crater impacts. Teacher must use the reading in the resource book to address this standard and discuss how this relates to objects in the solar system.
ES3D	Earth has been shaped by many natural catastrophes, including earthquakes, volcanic eruptions, glaciers, floods, storms, tsunamis, and the impacts of asteroids.	<ul style="list-style-type: none"> <li>Interpret current land forms of the Pacific Northwest as evidence of past geologic events (e.g., Mount St. Helen's and Crater Lake provide evidence of volcanism, the Channeled Scablands provides evidence of floods that resulted from melting of glaciers).</li> </ul>	Investigation 5 parts 1-4 pp 150-173; Resource book pp 59-70; CD-ROM: Crater Formation Animation, Mare Formation.	<b>Aligned as designed</b>	Teacher must make use of information found on the CD-ROM and Resource book on pp 59-70 as well as Extending the Experience 1-3.

**Alignment of Washington 6-8 Science Standards with  
FOSS/MS Planetary Science ~ Investigation 06**

Standard	Content Standard	Performance Expectation	Evidence of Alignment	Alignment	Alignment Comments
<b>SYSF</b>	The natural and designed world is complex; it is too large and complicated to investigate and comprehend all at once. Scientists and students learn to define small portions for the convenience of investigation. The units of investigation can be referred to as “systems.”	<ul style="list-style-type: none"> <li>Given a complex societal issue with strong science and technology components (e.g., overfishing, global warming), describe the issue from a systems point of view, highlighting how changes in one part of the system are likely to influence other parts of the system.</li> </ul>	pp 185-206	<b>Aligned with modifications (see comments)</b>	The teacher needs to intentionally take advantage of multiple opportunities to make the connection to a systems point of view and how the investigations are related to portions and the whole of a particular system.
<b>INQE</b>	Models are used to represent objects, events, systems, and processes. Models can be used to test hypotheses and better understand phenomena, but they have limitations.	<ul style="list-style-type: none"> <li>Create a model or simulation to represent the behavior of objects, events, systems, or processes. Use the model to explore the relationship between two variables and point out how the model or simulation is similar to or different from the actual phenomenon.</li> </ul>	Investigation 6 part 3 pp 201-205	<b>Aligned as designed</b>	Teacher must be intentional about use of the terms (vocabulary) model, systems, hypotheses, and phenomena.
<b>INQF</b>	It is important to distinguish between the results of a particular investigation and general conclusions drawn from these results.	<ul style="list-style-type: none"> <li>Generate a scientific conclusion from an investigation using inferential logic, and clearly distinguish between results (e.g., evidence) and conclusions (e.g., explanation).</li> <li>Describe the differences between an objective summary of the findings and an inference made from the findings.</li> </ul>	Investigation 6 part 2 pp 197-200	<b>Aligned as designed</b>	Teacher must be intentional about distinguishing between results and a conclusion.

**Alignment of Washington 6-8 Science Standards with  
FOSS/MS Planetary Science ~ Investigation 07**

Standard	Content Standard	Performance Expectation	Evidence of Alignment	Alignment	Alignment Comments
<b>SYSB</b>	The boundaries of a system can be drawn differently depending on the features of the system being investigated, the size of the system, and the purpose of the investigation.	<ul style="list-style-type: none"> <li>• Explain how the boundaries of a system can be drawn to fit the purpose of the study (e.g., to study how insect populations change, a system might be a forest, a meadow in the forest, or a single tree).</li> </ul>	Investigation 7 part 2 pp 222-227	<b>Aligned with modifications (see comments)</b>	Teacher must be intentional about the use of the terms system, subsystem and boundary. Teacher must be intentional about using the terms input and output of matter and energy when looking at the system.
<b>SYS D</b>	In an open system, matter flows into and out of the system. In a closed system, energy may flow into or out of the system, but matter stays within the system.	<ul style="list-style-type: none"> <li>• Given a description of a system, analyze and defend whether it is open or closed.</li> </ul>	Investigation 7 part 2 pp 222-227	<b>Aligned with modifications (see comments)</b>	Teacher must be intentional about the use of the term systems, subsystems, boundaries, input and output. Teachers must also be intentional about using the terms matter, energy, closed system and open system.
<b>SYSF</b>	The natural and designed world is complex; it is too large and complicated to investigate and comprehend all at once. Scientists and students learn to define small portions for the convenience of investigation. The units of investigation can be referred to as “systems.”	<ul style="list-style-type: none"> <li>• Given a complex societal issue with strong science and technology components (e.g., overfishing, global warming), describe the issue from a systems point of view, highlighting how changes in one part of the system are likely to influence other parts of the system.</li> </ul>	pp 207-238	<b>Aligned with modifications (see comments)</b>	The teacher needs to intentionally take advantage of multiple opportunities to make the connection to a systems point of view and how the investigations are related to portions and the whole of a particular system.

**Alignment of Washington 6-8 Science Standards with  
FOSS/MS Planetary Science ~ Investigation 07**

Standard	Content Standard	Performance Expectation	Evidence of Alignment	Alignment	Alignment Comments
INQA	<p>Scientific inquiry involves asking and answering questions and comparing the answer with what scientists already know about the world.</p>	<ul style="list-style-type: none"> <li>• Generate a question that can be answered through scientific investigation. This may involve refining or refocusing a broad and ill-defined question.</li> </ul>	pp 207-238	<b>Aligned as designed</b>	Teacher must be intentional about using questioning techniques and comparing results to known scientific data.
INQC	<p>Collecting, analyzing, and displaying data are essential aspects of all investigations.</p>	<ul style="list-style-type: none"> <li>• Communicate results using pictures, tables, charts, diagrams, graphic displays, and text that are clear, accurate, and informative.</li> <li>• Recognize and interpret patterns – as well as variations from previously learned or observed patterns – in data, diagrams, symbols, and words.</li> <li>• Use statistical procedures (e.g., median, mean, or mode) to analyze data and make inferences about relationships.</li> </ul>	Investigation 7 part 3 pp 228-232	<b>Aligned as designed</b>	
INQF	<p>It is important to distinguish between the results of a particular investigation and general conclusions drawn from these results.</p>	<ul style="list-style-type: none"> <li>• Generate a scientific conclusion from an investigation using inferential logic, and clearly distinguish between results (e.g., evidence) and conclusions (e.g., explanation).</li> <li>• Describe the differences between an objective summary of the findings and an inference made from the findings.</li> </ul>	Investigation 7 part 2 pp 222-227 and part 4 pp 232-235	<b>Aligned as designed</b>	Teacher must be intentional about distinguishing between results and a conclusion.

**Alignment of Washington 6-8 Science Standards with  
FOSS/MS Planetary Science ~ Investigation 07**

Standard	Content Standard	Performance Expectation	Evidence of Alignment	Alignment	Alignment Comments
<b>APPA</b>	People have always used technology to solve problems. Advances in human civilization are linked to advances in technology.	<ul style="list-style-type: none"> <li>Describe how a technology has changed over time in response to societal challenges.</li> </ul>	Investigation 7 part 1 pp 220-221	<b>Aligned with modifications (see comments)</b>	This investigation discusses space exploration and how civilization promotes scientific advances. This is the only place that this is directly addressed, however there are many other places in this module to discuss the connection between technologic advances and the effects on society.
<b>APPC</b>	Science and technology are interdependent. Science drives technology by demanding better instruments and suggesting ideas for new designs. Technology drives science by providing instruments and research methods.	<ul style="list-style-type: none"> <li>Give examples to illustrate how scientists have helped solve technological problems (e.g., how the science of biology has helped sustain fisheries) and how engineers have aided science (e.g., designing telescopes to discover distant planets).</li> </ul>	Investigation 7 part 1 pp 218-221; Video: "For All Mankind"	<b>Aligned as designed</b>	The teacher needs to be intentional about discussing the standard.

**Alignment of Washington 6-8 Science Standards with  
FOSS/MS Planetary Science ~ Investigation 08**

Standard	Content Standard	Performance Expectation	Evidence of Alignment	Alignment	Alignment Comments
<b>SYSA</b>	Any system may be thought of as containing subsystems and as being a subsystem of a larger system.	<ul style="list-style-type: none"> <li>Given a system, identify subsystems and a larger encompassing system</li> </ul>	Investigation 8 parts 1-4 pp 250-271	<b>Aligned with modifications (see comments)</b>	Teacher must be intentional about the use of the term system and subsystem. Teacher must be intentional about using the terms input and output of matter and energy when looking at the system.
<b>SYSF</b>	The natural and designed world is complex; it is too large and complicated to investigate and comprehend all at once. Scientists and students learn to define small portions for the convenience of investigation. The units of investigation can be referred to as "systems."	<ul style="list-style-type: none"> <li>Given a complex societal issue with strong science and technology components (e.g., overfishing, global warming), describe the issue from a systems point of view, highlighting how changes in one part of the system are likely to influence other parts of the system.</li> </ul>	pp 239-272	<b>Aligned with modifications (see comments)</b>	The teacher needs to intentionally take advantage of multiple opportunities to make the connection to a systems point of view and how the investigations are related to portions and the whole of a particular system.
<b>INQA</b>	Scientific inquiry involves asking and answering questions and comparing the answer with what scientists already know about the world.	<ul style="list-style-type: none"> <li>Generate a question that can be answered through scientific investigation. This may involve refining or refocusing a broad and ill-defined question.</li> </ul>	pp 239-272	<b>Aligned as designed</b>	Teacher must be intentional about using questioning techniques and comparing results to known scientific data.

**Alignment of Washington 6-8 Science Standards with  
FOSS/MS Planetary Science ~ Investigation 08**

Standard	Content Standard	Performance Expectation	Evidence of Alignment	Alignment	Alignment Comments
<b>INQB</b>	Different kinds of questions suggest different kinds of scientific investigations.	<ul style="list-style-type: none"> <li>• Plan and conduct a scientific investigation (e.g., field study, systematic observation, controlled experiment, model, or simulation) that is appropriate for the question being asked.</li> <li>• Propose a hypothesis, give a reason for the hypothesis, and explain how the planned investigation will test the hypothesis.</li> <li>• Work collaboratively with other students to carry out the investigations.</li> </ul>	Investigation 8 parts 3-4 pp 262-270	<b>Aligned as designed</b>	The teacher needs to be intentional about discussing how a question can lead to a specific scientific investigation.
<b>INQC</b>	Collecting, analyzing, and displaying data are essential aspects of all investigations.	<ul style="list-style-type: none"> <li>• Communicate results using pictures, tables, charts, diagrams, graphic displays, and text that are clear, accurate, and informative.</li> <li>• Recognize and interpret patterns – as well as variations from previously learned or observed patterns – in data, diagrams, symbols, and words.</li> <li>• Use statistical procedures (e.g., median, mean, or mode) to analyze data and make inferences about relationships.</li> </ul>	Investigation 8 parts 2-4 pp 255-270; Lab Notebook pp 57, 63, 65	<b>Aligned as designed</b>	
<b>INQF</b>	It is important to distinguish between the results of a particular investigation and general conclusions drawn from these results.	<ul style="list-style-type: none"> <li>• Generate a scientific conclusion from an investigation using inferential logic, and clearly distinguish between results (e.g., evidence) and conclusions (e.g., explanation).</li> <li>• Describe the differences between an objective summary of the findings and an inference made from the findings.</li> </ul>	Investigation 8 part 4 pp 265-267	<b>Aligned as designed</b>	Teacher must be intentional about distinguishing between results and a conclusion.

**Alignment of Washington 6-8 Science Standards with  
FOSS/MS Planetary Science ~ Investigation 09**

Standard	Content Standard	Performance Expectation	Evidence of Alignment	Alignment	Alignment Comments
<b>SYSB</b>	The boundaries of a system can be drawn differently depending on the features of the system being investigated, the size of the system, and the purpose of the investigation.	<ul style="list-style-type: none"> <li>Explain how the boundaries of a system can be drawn to fit the purpose of the study (e.g., to study how insect populations change, a system might be a forest, a meadow in the forest, or a single tree).</li> </ul>	Investigation 9 parts 2-3 pp 288-302	<b>Aligned with modifications (see comments)</b>	Teacher must be intentional about the use of the terms system, subsystem and boundary. Teacher must be intentional about using the terms input and output of matter and energy when looking at the system.
<b>SYS D</b>	In an open system, matter flows into and out of the system. In a closed system, energy may flow into or out of the system, but matter stays within the system.	<ul style="list-style-type: none"> <li>Given a description of a system, analyze and defend whether it is open or closed.</li> </ul>	Investigation 9 parts 2-3 pp 288-297	<b>Aligned with modifications (see comments)</b>	Teacher must be intentional about the use of the term systems, subsystems, boundaries, input and output. Teachers must also be intentional about using the terms matter, energy, closed system and open system.
<b>SYSF</b>	The natural and designed world is complex; it is too large and complicated to investigate and comprehend all at once. Scientists and students learn to define small portions for the convenience of investigation. The units of investigation can be referred to as “systems.”	<ul style="list-style-type: none"> <li>Given a complex societal issue with strong science and technology components (e.g., overfishing, global warming), describe the issue from a systems point of view, highlighting how changes in one part of the system are likely to influence other parts of the system.</li> </ul>	pp 273-302	<b>Aligned with modifications (see comments)</b>	The teacher needs to intentionally take advantage of multiple opportunities to make the connection to a systems point of view and how the investigations are related to portions and the whole of a particular system.

**Alignment of Washington 6-8 Science Standards with  
FOSS/MS Planetary Science ~ Investigation 09**

Standard	Content Standard	Performance Expectation	Evidence of Alignment	Alignment	Alignment Comments
<b>INQA</b>	Scientific inquiry involves asking and answering questions and comparing the answer with what scientists already know about the world.	<ul style="list-style-type: none"> <li>• Generate a question that can be answered through scientific investigation. This may involve refining or refocusing a broad and ill-defined question.</li> </ul>	pp 273-302	<b>Aligned as designed</b>	Teacher must be intentional about using questioning techniques and comparing results to known scientific data.
<b>INQB</b>	Different kinds of questions suggest different kinds of scientific investigations.	<ul style="list-style-type: none"> <li>• Plan and conduct a scientific investigation (e.g., field study, systematic observation, controlled experiment, model, or simulation) that is appropriate for the question being asked.</li> <li>• Propose a hypothesis, give a reason for the hypothesis, and explain how the planned investigation will test the hypothesis.</li> <li>• Work collaboratively with other students to carry out the investigations.</li> </ul>	Investigation 9 part 2 pp 288-292	<b>Aligned as designed</b>	The teacher needs to be intentional about discussing how a question can lead to a specific scientific investigation.
<b>INQE</b>	Models are used to represent objects, events, systems, and processes. Models can be used to test hypotheses and better understand phenomena, but they have limitations.	<ul style="list-style-type: none"> <li>• Create a model or simulation to represent the behavior of objects, events, systems, or processes. Use the model to explore the relationship between two variables and point out how the model or simulation is similar to or different from the actual phenomenon.</li> </ul>	Investigation 9 part 2 pp 288-292 and part 4 pp 298-302	<b>Aligned as designed</b>	Teacher must be intentional about use of the terms (vocabulary) model, systems, hypotheses, and phenomena.

**Alignment of Washington 6-8 Science Standards with  
FOSS/MS Planetary Science ~ Investigation 09**

Standard	Content Standard	Performance Expectation	Evidence of Alignment	Alignment	Alignment Comments
<b>INQF</b>	It is important to distinguish between the results of a particular investigation and general conclusions drawn from these results.	<ul style="list-style-type: none"> <li>• Generate a scientific conclusion from an investigation using inferential logic, and clearly distinguish between results (e.g., evidence) and conclusions (e.g., explanation).</li> <li>• Describe the differences between an objective summary of the findings and an inference made from the findings.</li> </ul>	Investigation 9 parts 1-4 pp 283-301	<b>Aligned as designed</b>	Teacher must be intentional about distinguishing between results and a conclusion.
<b>ES1A</b>	The Moon's monthly cycle of phases can be explained by its changing relative position as it orbits Earth. An eclipse of the Moon occurs when the Moon enters Earth's shadow. An eclipse of the Sun occurs when the Moon is between the Earth and Sun, and the Moon's shadow falls on the Earth.	<ul style="list-style-type: none"> <li>• Use a physical model or diagram to explain how the Moon's changing position in its orbit results in the changing phases of the Moon as observed from Earth.</li> <li>• Explain how the cause of an eclipse of the Moon is different from the cause of the Moon's phases.</li> </ul>	Investigation 9 parts 1-4 pp 283-301; Resource book pp 80-83; CD-ROM: Phases of the Moon; Lab Notebook p 67	<b>Aligned as designed</b>	Teacher must make use of information found on the CD-ROM and in the Resource book on pp 80 - 83.
<b>ES1C</b>	Most objects in the Solar System are in regular and predictable motion. These motions explain such phenomena as the day, the year, phases of the moon, and eclipses.	<ul style="list-style-type: none"> <li>• Use a simple physical model or labeled drawing of the Earth-Sun-Moon system to explain day and night, phases of the Moon, and eclipses of the Moon and Sun.</li> </ul>	Investigation 9 parts 1-3 pp 284-297; Resource book pp 80-83; CD-ROM: Phases of the Moon; Lab Notebook page 67	<b>Aligned as designed</b>	Teacher must make use of information found on the CD-ROM and Resource book on pp 80 - 83.

**Alignment of Washington 6-8 Science Standards with  
FOSS/MS Planetary Science ~ Investigation 10**

Standard	Content Standard	Performance Expectation	Evidence of Alignment	Alignment	Alignment Comments
<b>SYSA</b>	Any system may be thought of as containing subsystems and as being a subsystem of a larger system.	<ul style="list-style-type: none"> <li>Given a system, identify subsystems and a larger encompassing system</li> </ul>	Resource book pp 84-89	<b>Aligned with modifications (see comments)</b>	Teacher must be intentional about the use of the term system and subsystem. Teacher must be intentional about using the terms input and output of matter and energy when looking at the system.
<b>SYSF</b>	The natural and designed world is complex; it is too large and complicated to investigate and comprehend all at once. Scientists and students learn to define small portions for the convenience of investigation. The units of investigation can be referred to as "systems."	<ul style="list-style-type: none"> <li>Given a complex societal issue with strong science and technology components (e.g., overfishing, global warming), describe the issue from a systems point of view, highlighting how changes in one part of the system are likely to influence other parts of the system.</li> </ul>	pp 303-326	<b>Aligned with modifications (see comments)</b>	The teacher needs to intentionally take advantage of multiple opportunities to make the connection to a systems point of view and how the investigations are related to portions and the whole of a particular system.
<b>INQA</b>	Scientific inquiry involves asking and answering questions and comparing the answer with what scientists already know about the world.	<ul style="list-style-type: none"> <li>Generate a question that can be answered through scientific investigation. This may involve refining or refocusing a broad and ill-defined question.</li> </ul>	pp 302-326	<b>Aligned as designed</b>	Teacher must be intentional about using questioning techniques and comparing results to known scientific data.

**Alignment of Washington 6-8 Science Standards with  
FOSS/MS Planetary Science ~ Investigation 10**

Standard	Content Standard	Performance Expectation	Evidence of Alignment	Alignment	Alignment Comments
<b>INQB</b>	Different kinds of questions suggest different kinds of scientific investigations.	<ul style="list-style-type: none"> <li>Plan and conduct a scientific investigation (e.g., field study, systematic observation, controlled experiment, model, or simulation) that is appropriate for the question being asked.</li> <li>Propose a hypothesis, give a reason for the hypothesis, and explain how the planned investigation will test the hypothesis.</li> <li>Work collaboratively with other students to carry out the investigations.</li> </ul>	Investigation 10 part 1 pp 312-317	<b>Aligned as designed</b>	The teacher needs to be intentional about discussing how a question can lead to a specific scientific investigation.
<b>INQG</b>	Scientific reports should enable another investigator to repeat the study to check the results.	<ul style="list-style-type: none"> <li>Prepare a written report of an investigation by clearly describing the question being investigated, what was done, and an objective summary of results. The report should provide evidence to accept or reject the hypothesis, explain the relationship between two or more variables, and identify limitations of the investigation.</li> </ul>	Investigation 10 part 3	<b>Aligned with modifications (see comments)</b>	Teach and model the appropriate format for scientific reports.
<b>APPE</b>	Scientists and engineers often work together to generate creative solutions to problems and decide which ones are most promising.	<ul style="list-style-type: none"> <li>Collaborate with other students to generate creative solutions to a problem, and apply methods for making tradeoffs to choose the best solution.</li> </ul>	Investigation 10 part 2 pp 318-322	<b>Aligned with modifications (see comments)</b>	Teacher questioning should elicit student understanding of scientists and engineers working as a team to solve problems. Students work throughout the unit in collaborative groups.

**Alignment of Washington 6-8 Science Standards with  
FOSS/MS Planetary Science ~ Investigation 10**

Standard	Content Standard	Performance Expectation	Evidence of Alignment	Alignment	Alignment Comments
<b>ES1B</b>	<p>Earth is the third planet from the sun in a system that includes the Moon, the Sun, seven other major planets and their moons, and smaller objects such as asteroids, plutoids, dwarf planets, and comets. These bodies differ in many characteristics (e.g., size, composition, relative position).</p>	<ul style="list-style-type: none"> <li>• Compare the relative sizes and distances of the Sun, Moon, Earth, other major planets, moons, asteroids, plutoids, and comets.</li> </ul>	<p>Investigation 10 parts 2-3, pp 318-324; Resource book pp 84-89 and 97-100; CD-ROM: Planet Images, Solar System Planet Locator</p>	<p><b>Aligned with modifications (see comments)</b></p>	<p>Teacher must make use of information found in The CD and Student Text readings on pp 84-89 and 97-100.</p>
<b>ES1E</b>	<p>Our Sun is one of hundreds of billions of stars in the Milky Way galaxy. Many of these stars have planets orbiting around them. The Milky Way galaxy is one of hundreds of billions of galaxies in the universe.</p>	<ul style="list-style-type: none"> <li>• Construct a physical model or diagram showing Earth's position in the Solar System, the Solar System's position in the Milky Way, and the Milky Way among other galaxies.</li> </ul>	<p>Investigation 10 part 3 pp 322-325; Resource book pp 97-100</p>	<p><b>Module/Unit requires changes (see comments)</b></p>	<p>Teacher must make use of information found in the Resource book on pp 97-100. The unit/ lesson contain many opportunities to discuss objects in space beyond the Moon and our Solar System, however teacher needs to be intentional about discussing other galaxies.</p>